SF

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 24 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Methyl Bromide Registration Standard. Protocol for almond residue studies (I.D. No. 53201-1; Record No. 214966; RCB No. 3422)

FROM: William J. Hazel, Ph.D., Chemist
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C) W.J. Hazel

TO: Jeffrey Kempter (PM-32)
Disinfectants Branch
Registration Division (TS-767C)

THRU: William J. Boodee, Chief
Reregistration Section
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C) WJB

Introduction

The Almond Board of California (ABC) has submitted a response, dated 2/1/88, to the 11/3/87 W. Hazel review of their protocol to study residues resulting from the postharvest commodity fumigation of almonds with methyl bromide (MeBr). The ABC comments/questions will be paraphrased and an RCB response provided. The numerical designations correspond with those used in the 11/3/87 review.

Specific Considerations

Item 2(i). ABC Comment. It is out of the scope of the current work, originally undertaken as a research project, to perform postharvest commodity fumigation of almonds grown in MeBr-treated soil. Typically, 5 years elapse between soil fumigation and the first commercial harvest. Preston Hartsell (USDA, ARS, Fresno, CA) has stated that inorganic Br (iBr) is typically nondetectable (detection limit not provided) and always $\leq$5 ppm in almonds not fumigated postharvest.

RCB Response. As stated in the August, 1986 Registration Standard (R.S.) Guidance Document, almonds must be grown in MeBr-fumigated soil prior to postharvest fumigation to reflect the two sources of iBr. RCB is well aware of the interval between planting and the first harvest. The ABC is reminded that they may simply fumigate stored almonds grown in soil certified/documented as having been fumigated preplant with MeBr 5 years earlier at 870 lb ai/A (2 lb ai/tree site).

1

Item 2(ii). ABC Comment. Because chamber fumigation is the industry-wide standard, it should be the only method tested, rather than testing several methods (such as vacuum, boxcar, and tarpaulin). Further, the USDA/ARS [noncommercial] fiberglass chambers can be used to generate worst case residue data. Fumigation in boxcars, vans, or trailers is outdated and ineffective. Vacuum fumigation is not a "standard" almond industry practice and no schedules have been established for this method. Tarpaulin fumigation is out of the scope of this work and past experience indicates that residues will be no higher than those resulting from fiberglass chamber treatment.

RCB Response. The Methyl Bromide Industry Panel (MBIP), with which the ABC should coordinate the subject data generation, has been informed that bridging studies may be conducted to determine which fumigation method results in the highest residues of the parent compound. The R.S. specifies commercial equipment. If the almond industry uses only chambers for fumigation, then the ABC must coordinate with MBIP to restrict use to this type of equipment unless data are presented for each method or bridging data are provided to demonstrate that a chamber results in worst case residues; this is particularly true in the case of vacuum chamber fumigation. The comparative study must include the noncommercial fiberglass chamber to determine if it is a suitable substitute for other fumigation equipment. It is possible that, in the future, vacuum chambers may predominate the industry. For this reason, we must now have residue data to represent this use or prohibit this type of use via label restrictions.

Item 2(iii). ABC Comment. In response to the RCB statement that multiple treatments should be conducted if used commercially, ABC has incorporated treatments whereby in-shell and shelled almonds are to be fumigated three times at 50 F and 80 F.

RCB Response. This appears to satisfy our requirements as long as the ABC can document that three treatments is typically the maximum number and that 50 F and/or 80 F is both a typical fumigation temperature and the worst-case situation in terms of temperature.

Item 2(iv). ABC Comment. The protocol will incorporate analyses before, as well as after, postharvest treatment as required in the R.S. and restated in the 11/3/87 W. Hazel review.

RCB Response. This satisfies our requirement 2(iv).

Item 2(v). ABC Comment. Analyses for iBr have been incorporated into the protocol in response to the R.S. and the 11/3/87 memo.

RCB Response. This satisfies requirement 2(v).

Item 2(vi). ABC Comment. There is no need to incorporate almond hull analyses into the protocol because MeBr is not registered for in-hull fumigation of almonds.

RCB Response. Pending Registration Division concurrence on this issue, ABC has satisfied RCB requirement 2(vi). Note that the Product Manager may deem it necessary to restrict use to hulled almonds in order to preclude this apparently unregistered use for which we have no supporting data.

Item 2. ABC Comment. The ABC does not know what the Residue Chemistry Chapter of the R.S. is. Therefore, the ABC cannot forward a copy to their contractor.

RCB Response. The ABC should request that the MBIP send them a copy of the Residue Chemistry Chapter for Methyl Bromide which presents a discussion of the available residue data. If MBIP does not have a copy for forwarding, please request one from:

Freedom of Information Office (A-101)
Environmental Protection Agency
401 M St, SW
Washington, D.C. 20460

Item 3. ABC Comment. In response to RCB's requirement that the almond variety selected for testing be the one with the highest oil content, ABC claims that there are no significant differences betwen cvs. in terms of oil content. Nonpareil almonds were chosen because they represent ca. 60% of the production. In-shell and shelled almonds will both be included (in response to an RCB inquiry).

RCB Response. If the ABC can support this statement with data, RCB will accept Nonpareil almonds as the test cv. The ABC has satisfied the portion of requirement 3 pertaining to in-shell and shelled almonds.

Item 4. Refer to Item 2(ii) for a discussion of the utility of a noncommercial fiberglass fumigation chamber.

Item 5. ABC Comment. In response to RCB's requirement that the residue trials be at the maximun rate and represent actual commercial fumigation events, ABC replies that, as noted under 2(ii), use of [noncommercial] fiberglass chambers is representative of commercial chamber type, MeBr introduction method, temperature, humidity, air circulation, nut packaging, percent of fumigation chamber capacity typically filled, and the duration of fumigation and aeration. ABC states that their protocol includes conditions that will lead to the highest residues.

RCB Response. ABC, in conjunction with MBIP, must demonstrate by comparative studies that the fiberglass chamber represents commercial chambers and the worst-case situation. Detailed discussion must show the similarity between the protocol and commercial practice for each of the variables listed above.

Item 6. ABC Comment. In response to RCB's statement that many aspects of the protocol are research oriented and do not represent the worst-case situation, ABC states that the testing was initiated as research but that it incorporates many features that should essentially satisfy EPA's data requirements, particularly those relating to worst-case scenarios.

RCB Response. As originally written, many deficiencies existed in the protocol (see 11/3/87 W. Hazel review). The use on almonds and the tolerances for iBr and MeBr per se must be fully supported, not merely essentially supported. Refer to Items 2(ii) and 5 for further discussion.

Item 7. ABC Comment. In response to the RCB requirement that an aeration interval be proposed and that aeration continue until MeBr per se is nondetectable, the ABC replied that the protocol will incorporate aeration until MeBr per se is nondetectable.

RCB Response. The ABC reply satisfies the extended sampling issue. However, the ABC and MBIP must cooperate to propose an aeration interval to appear on product labels.

Item 8. ABC Comment. In response to the RCB requirement that raw data, representative chromatograms, and calibration curves be submitted in addition to calculations of mean values and their standard deviations, the ABC has agreed to incorporate the submission of these raw data in their protocol.

RCB Response. This satisfies RCB requirement 8.

cc: Amy Rispin (SIMS), Walter Francis (RD, PMT-32), PMSD/ISB

bcc: SF, RF, Reg. Std. File, Reviewer, Circulate

TS-769C:CM#2:RCB:Rm.810:557-7484:W.Hazel:3/24/88:W.Boodee:3/24/88:R.Schmitt:3/24/88